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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/664,067

09/16/2003

Seth T. Rodgers

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7590 07/24/2007  
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EXAMINER

BOWERS, NATHAN ANDREW

ART UNIT

PAPER NUMBER

1744

MAIL DATE

DELIVERY MODE

07/24/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



<b>Office Action Summary</b>	Application No. 10/664,067	Applicant(s) RODGERS ET AL.	
	Examiner Nathan A. Bowers	Art Unit 1744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 May 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.  
4a) Of the above claim(s) See Continuation Sheet is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 45-54 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some    \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |



Continuation of Disposition of Claims: Claims pending in the application are 45-54,57-60,66-68,70,79-81,83,86,90,91,93,95,96,102,106-108,110,112,115,116,118 and 119.

Continuation of Disposition of Claims: Claims withdrawn from consideration are 57-60,66-68,70,79-81,83,86,90,91,93,95,96,102,106-108,110,112,115,116,118 and 119.



## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election with traverse of Group II, claims 45/54 and 117 in the reply filed on 08 May 2007 is acknowledged. The traversal is on the ground(s) that there is no undue burden on the Examiner to search all the claims. This is not found persuasive because the Groups are characterized by different limitations, and are drawn to different statutory classes of inventions (apparatus and method).

The requirement is still deemed proper and is therefore made FINAL.

Claims 41-44, 57-93, 95-116, 118 and 119 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to nonelected inventions, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 08 May 2007.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

- 1) Claims 45-50 are rejected under 35 U.S.C. 102(b) as being anticipated by Thomas (WO 9955827).



With respect to claims 45 and 46, Thomas discloses a method of producing a device comprising a predetermined reaction site (Figure 1:2). The reaction site is formed by attaching a first component of the device to a second component of the device with or without auxiliary adhesives. Page 2, line 25 to page 3, line 6, page 5, lines 6-11 and page 6, lines 10-22 indicate that microchannels and microchambers are formed by adhering a cover plate to a micro-machined substrate. Page 11, lines 21-24 and page 18, lines 4-6 state that the reaction site is roughly circular in shape and characterized by a diameter of 400-600 microns. Therefore, Thomas's bioreactor vessels are about 0.1 microliters in volume.

With respect to claim 49, Thomas discloses the method in claim 45 wherein the first component comprises polystyrene and polycarbonate polymers. This is described on page 7, lines 8-15.

With respect to claims 53 and 54, Thomas discloses the method in claim 45 wherein the first component is attached to the second component to produce an enclosed, liquid-tight junction therebetween. This is described on page 2, line 25 to page 3, line 6, page 5, lines 6-11 and page 6, lines 10-22.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:



Art Unit: 1744

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

- 2) Claims 47, 48 and 50-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thomas (WO 9955827) as applied to claim 45, and further in view of Kellogg (US 20040259237) and/or Wilding (US 6184029).



Art Unit: 1744

Thomas discloses the method set forth in claim 45 as set forth in the 35 U.S.C. 103 rejections above, however does not expressly disclose by what process the first component is attached to the second component.

Kellogg discloses a microfluidic system for isolating and amplifying nucleic acids derived from cell cultures. Kellogg states in paragraph [0162] that the biochemical system is formed by attaching a microfluidics disc (Figure 1:201) to a sealing layer (Figure 1:301). Paragraph [0107] teaches that attachment is achieved by applying heat energy to melt at least a portion of the first component.

Wilding discloses a microfluidic detection system that comprises a first component (Figure 1:11) attached to a second component (Figure 1:29). A plurality of sealed microchannels and microchambers are formed through the attachment of the first component to the second component. Wilding teaches in column 8, lines 38-53 that the first component is attached to the second component using ultrasonic welding.

Thomas, Kellogg and Wilding are analogous art because they are from the same field of endeavor regarding the construction of microfluidic systems.

At the time of the invention, it would have been obvious to ensure that the first component and second component of Thomas are attached to each other using a technique such as sonic welding and heat pressing. As evidenced by Kellogg and Wilding, these processes are well known in the art, and are effective in sealing layers together in microfluidic systems. It would have been apparent to one of ordinary skill in the art to adhere the first and second components disclosed by Thomas to each other using any procedure known in the microfluidic chip art.



**Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Freeman (US 6653124) reference discloses the state of the art regarding microfermenters.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan A. Bowers whose telephone number is (571) 272-8613. The examiner can normally be reached on Monday-Friday 8 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gladys Corcoran can be reached on (571) 272-1214. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



NAB



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